Use Attainability Analysis

for

WBID 455 Sampson Creek

Submitted by
BWR

June 1, 2007

Submitted to:
Missouri Department of Natural Resources
Division of Environmental Quality
Water Protection Program

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet A - Water Body Identification

I. Water Body Information (For water body being surveyed)

Water Body Name (from USGS 7.5' quad):	Sampson Creek
Missouri Water Body Identification (WBID) Number:	455
8-digit HUC: 10280101	County: Harrison
Upstream Legal Description (from Table H):	Transect A 100 M from Jack's Branch Rd Bridge Crossing
Downstream Legal Description(from Table H):	Sand Bar on Lt side of Stream) Transect A 35 M from Hwy 72 upstream
Number of sites evaluated	3 sites
List all sites numbers, listed consequently upstream to downstream:	Site 1 - Upstream, Entry Site 2 - Midsection Site 3 - downstream

19, 6 DAY, 29, Month

Site Locations Map(s): Attach a map of entire segment with assessment sites clearly labeled. Mark any other items that may be of interest.

II. Subegmentation (fill this section out only in cases where subesgmentation is being proposed)

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)	
Upstream Coordinates: UTM X N 40.20617 Y W 094.23401	Downstream Coordinates: UTM X N 40.15161 Y W 094.20687

HORIZONTAL COLLECTION METHOD (Indicate the method used to determine the locational data.)

Global Positioning System (GPS)		Interpolation	
Static Mode		Topographic Map or DRG	
Dynamic Mode (Kinematic)		Aerial Photograph or DOQQ	
Precise Positioning Service		Satellite Imagery	
Signal Averaging		Interpolation Other	
Real Time Differential Processing			

HORIZONTAL ACCURACY ESTIMATE

GPS Data Quality		Interpolation Data Quality
FOM	± _____ Meters	Source Map Scale: 1:24,000 1:100,000 Other _____
EPE	± 20 Feet or ± _____ Meters	
PDOP		± _____ Feet or ± _____ Meters

III. Discharger Facility Information (list all permitted dischargers on the stream)

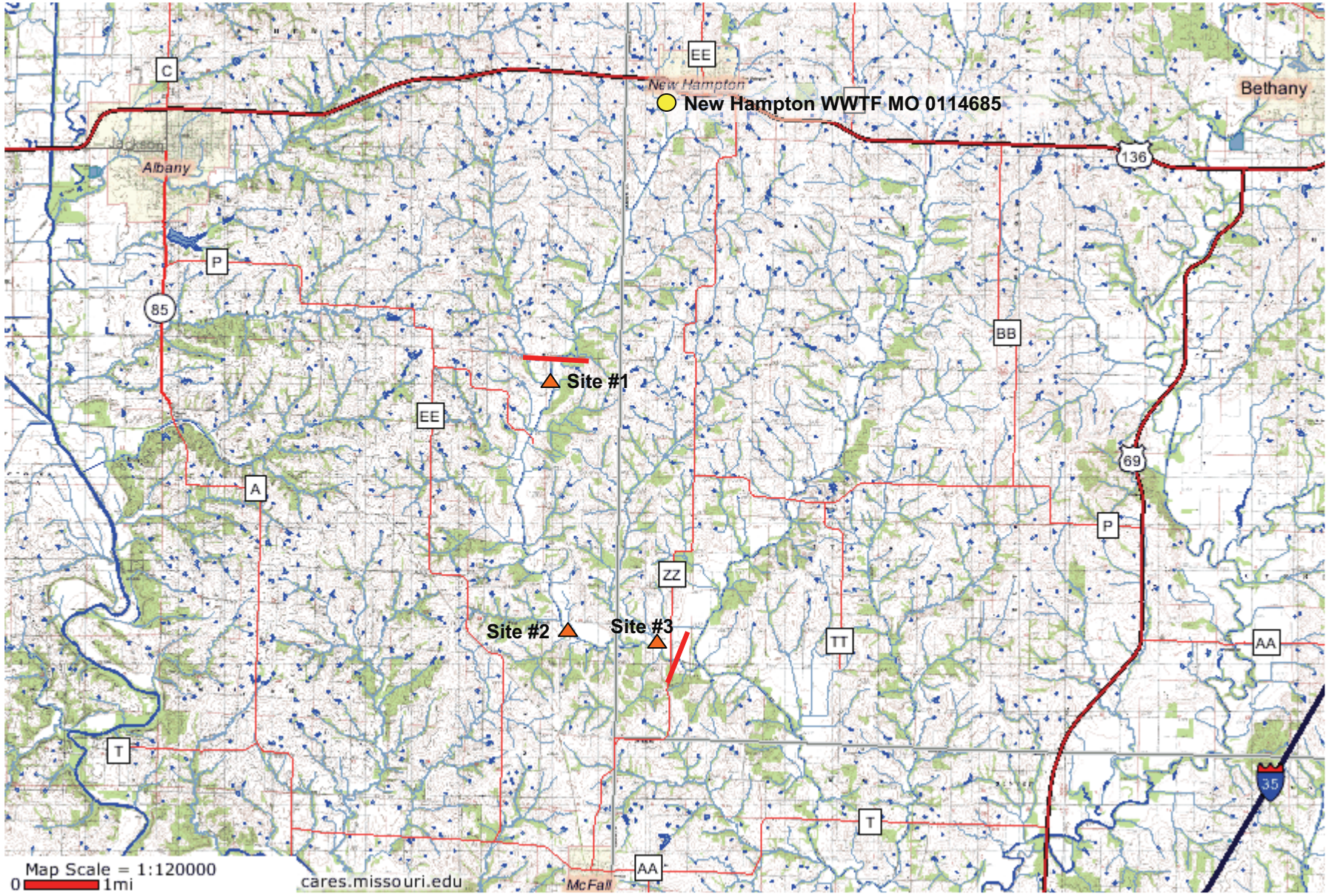
Discharger Facility Name(s):	New Hampton WWTF
Discharger Permit Number(s):	MO 0114685

IV. UAA Surveyor (please print legibly)

Name of Surveyor Ryan M. Lunt	Telephone Number: (913) 707-1459
Organization/Employer:	Seagull Environmental Technologies
Position:	Team Leader Northwest Region - Environmental Scientist

Please verify that you have completed all sections, checked all applicable boxes and that everything is complete.

Signed: Ryan M. Lunt **Date:** 05-14-07



BWR
Right in the Center

Sampson Creek
WBID #455

N

WBID# 455
Site# 1

Field Data Sheets for Recreational Use Stream Surveys
Data Sheet B - Site Characterization
(must be completed for each site)

Date & Time: 05-14-07 12:00	Site Location Description (e.g., road crossing): Transect A is 100m downstream from Jacks Branch Rd Bridge Crossing
Personnel (Data Collectors): Ryan M. Lunt & William Wells	
Current Weather Conditions: ~~Partly~~ Sunny 80-85°F	Facility Name: New Hampton
Weather Conditions for Past 10 days: last 7 days sunny) 3 days was Flash Flooding	Permit Number: MO 0114685
Drought Conditions?: No drought ☐; Phase I ☐; Phase II ☐; Phase III ☐; Phase IV ☐; Unknown ☐	

Site Locations:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION IN METERS)

Site GPS Coordinates: UTM X: ~~N40.20617~~ W094.23401 Y: ~~W094.23401~~ N40.20617

HORIZONTAL COLLECTION METHOD (Indicate the method used to determine the locational data.)

Global Positioning System (GPS)		Interpolation	
Static Mode		Topographic Map or DRG	
Dynamic Mode (Kinematic)		Aerial Photograph or DOQQ	
Precise Positioning Service		Satellite Imagery	
Signal Averaging		Interpolation Other	
Real Time Differential Processing			

HORIZONTAL ACCURACY ESTIMATE

GPS Data Quality		Interpolation Data Quality
FOM	± _____ Meters	Source Map Scale: 1:24,000 1:100,000 Other _____
EPE	± _____ Feet or ± _____ Meters	± _____ Feet or ± _____ Meters
PDOP		

✱ Photos: No Photo's taken

Upstream Photos		Downstream Photos		Other Photos	
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose

Uses Observed*: (Uses actually observed at time of survey.)

☐ Swimming	☐ Skin diving	☐ SCUBA diving	☐ Tubing	☐ Water skiing
☐ Wind surfing	☐ Kayaking	☐ Boating	☐ Wading	☐ Rafting
☐ Hunting	☐ Trapping	☐ Fishing	☒ None of the above	☐ Other:

Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use *Data Sheet D- Recreational Use Interview* when conducting interviews.)

Surrounding Conditions*: (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

☐ City/county parks	☐ Playgrounds	☐ MDC conservation lands	☐ Urban areas	☐ Campgrounds
☐ Boating accesses	☐ State parks	☐ National forests	☐ Nature trails	☐ Stairs/walkway
☐ No trespass sign	☐ Fence	☒ Steep slopes	☐ None of the above	☒ Other: Farm land

Comments: Steep slopes was from the Flash Flooding of Sampson Creek 10 days ago. The surrounding land is farming

Indications of Human Use*: (attach photos)

☒ Roads	☐ Rope swings	☐ Foot paths/prints	☐ Dock/platform	☐ Livestock Watering	☐ RV / ATV Tracks
☐ Camping Sites		☐ Fire pit/ring	☐ NPDES Discharge	☐ Fishing Tackle	☒ Other:

Comments: ~~Transects~~ Jack's Branch road off of Hwy P

50% Run
50% Pool

*** Page Two – Data Sheet B for WBID # 455 :**
Stream Morphology:

Upstream View's Physical Dimensions: Is there any water present at this view? ☒ Yes ☐ No

If so, is there an obvious current? ☒ Yes ☐ No

Select one of the following channel features:

Channel Feature	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
10% RIFFLE	65 meters	4 m	6.5 m	0.10	0.11
65% RUN					
25% POOL					

Downstream View's Physical Dimensions: Is there any water present at this view? ☒ Yes ☐ No

If so, is there an obvious current? ☐ Yes ☒ No

Select one of the following channel features:

Channel Feature	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE					
RUN					
100% POOL	10 m	7 m	22.6	0.27 m	0.28

Substrate*: (These values should add up to 100%.)

% Cobble	% Gravel	5 % Sand	50 % Silt	45 % Mud/Clay	% Bedrock

Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site)

little aquatic Vegetation. Banks are very woody. All the woody debris is from the flooding. Detritus floating in the water column. Algal growth on substrate

Water Characteristics*: (Mark all that apply.)

Odor:	☐ Sewage	☐ Musky	☐ Chemical	☒ None	☐ Other:
Color:	☐ Clear	☒ Green	☐ Gray	☐ Milky	☐ Other:
Bottom Deposit:	☐ Sludge	☐ Solids	☒ Fine sediments	☐ None	☐ Other:
Surface Deposit:	☐ Oil	☐ Scum	☐ Foam	☒ None	☐ Other:

Comments: Please attach any additional comments () to this form.

*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that effect another use.

Please verify that you have completed all sections, checked all applicable boxes and that everything is complete.

Surveyor's Signature: Ryan M. Lunt Date of Survey: 05-14-07

Organization: Seagull Envirotechnologies Position: Environmental Scientists

4 Transects: 19.6 meters

Data Sheet C – Cross-Sectional Depth Measurements (for estimation of median depth)

	Distance from Stream edge	Depth	Rank		Assigned Rank	Sorted depth
Transect A	0.70	0.1	0.09 (1)		1	
	1.20	0.19	0.10 (2)		2	
	1.70	0.25	0.13 (3)		3	
	2.20	0.30	0.19 (4)		4	
	2.70	~~3.00~~ 0.32	0.20 (5)		5	
	3.20	0.34	0.25 (6)		6	
	3.70	0.27	0.27 (7)		7	
	4.20	0.20	0.30 (8)		8	
	4.70	0.13	0.32 (9)		9	
	5.20	0.09	0.34 (10)		10	
					11	
Transect B	0.30	0.10	0.05 (1)		12	
	0.60	0.16	0.10 (2)		13	
	0.90	0.20	0.16 (3)		14	
	1.20	0.30	0.20 (4)		15	
3 meters	1.50	0.38	0.30 (5)		16	
	1.80	0.35	0.35 (6)		17	
	2.10	0.40	0.38 (7)		18	
	2.40	0.44	0.39 (8)		19	
	2.70	0.39	0.40 (9)		20	
	3.00	0.05	0.44 (10)		21	
					22	
Transect C	0.70	0.10	0.10 (1)		23	
	1.40	0.30	0.10 (2)		24	
	2.10	0.29	0.14 (3)		25	
7.0 m	2.80	0.15	0.15 (4)		26	
	3.50	0.14	0.26 (5)		.	
	4.20	0.26	0.27 (6)		.	
	4.90	0.28	0.28 (7)		.	
	5.60	0.29	0.29 (8)		n	
	6.30	0.27	0.29 (9)			
	7.00	0.10	0.30 (10)			

If there is an odd number of entries find middle rank [(n+1)/2]. The corresponding sorted value depth to the middle rank is the median depth.
If there is an even number of entries, the median depth corresponds to the arithmetic average of the two depth values surrounding the middle rank.

I, the undersigned, hereby affirm to the best of my knowledge, that all information reported on this UAA datasheet is true and accurate.

Signed: Ryan M. Lust **Date:** 05-14-07

Organization: Seagull Environmental Technologies Position: Environmental Scientist

Data Sheet C – Cross-Sectional Depth Measurements (for estimation of median depth)

	Distance from Stream edge	Depth	Rank		Assigned Rank	Sorted depth
	0.70	0.10	0.10 (1)		1	
Transect D	1.40	0.29	0.29 (2)		2	
	2.10	0.50	0.50 (3)		3	
	2.80	0.56	0.56 (4)		4	
7m	3.50	0.57	0.57 (5)		5	
	4.20	0.63	0.61 (6)		6	
	4.90	0.67	0.63 (7)		7	
	5.60	0.71	0.67 (8)		8	
	6.30	0.70	0.70 (9)		9	
	7.00	0.61	0.71 (10)		10	
					11	
Transect E	0.40	0.10	0.07 (1)		12	
	0.80	0.21	0.10 (2)		13	
	1.20	0.20	0.11 (3)		14	
4m	1.60	0.19	0.11 (4)		15	
	2.00	0.11	0.15 (5)		16	
	2.40	0.11	~~0.20~~ 0.19 (6)		17	
	2.80	0.15	0.20 (7)		18	
	3.20	0.24	0.20 (8)		19	
	3.60	0.20	0.24 (9)		20	
	4.00	0.07	0.24 (10)		21	
					22	
Transect F	1.20	0.35	0.35 (1)		23	
	2.40	0.75	0.75 (2)		24	
	3.60	1 meter	0.91 (3)		25	
	4.80	1 meter	1 meter (4)		26	
12m	6.00	1 meter	(5)		.	
	7.20	1 meter	(6)		.	
	8.40	1 meter	(7)		.	
	9.60	1 meter	(8)		n	
	10.80	1 meter	(9)			
	12.00	0.91	(10)			

If there is an odd number of entries find middle rank [(n+1)/2]. The corresponding sorted value depth to the middle rank is the median depth.
If there is an even number of entries, the median depth corresponds to the arithmetic average of the two depth values surrounding the middle rank.

I, the undersigned, hereby affirm to the best of my knowledge, that all information reported on this UAA datasheet is true and accurate.

Signed: Ryan M. Lunt **Date:** 05-14-07

Organization: Seagull Environmental Technologies Position: Environmental Scientists

Data Sheet C – Cross-Sectional Depth Measurements (for estimation of median depth)

	Distance from Stream edge	Depth	Rank		Assigned Rank	Sorted depth
Transect G 10 meter	1.0	0.61	0.61 (1)		1	
	2.0	1 meter	0.84 (2)		2	
	3.0	1 meter	1 meter (3)		3	
	4.0	1 meter	(4)		4	
	5.0	1 meter	(5)		5	
	6.0	1 meter	(6)		6	
	7.0	1 meter	(7)		7	
	8.0	1 meter	(8)		8	
	9.0	1 meter	(9)		9	
	10.0	0.84	(10)		10	
					11	
Transect H 4 m	0.40	0.10	0.03 (1)		12	
	0.80	0.13	0.05 (2)		13	
	1.20	0.15	0.10 (3)		14	
	1.60	0.20	0.13 (4)		15	
	2.0	0.25	0.15 (5)		16	
	2.40	~~0.30~~ 0.28 RL	~~0.20~~ 0.15 (6)		17	
	2.80	0.31	~~0.25~~ 0.20 (7)		18	
	3.20	0.18 RL	~~0.18~~ 0.25 (8)		19	
	3.60	0.08	0.28 (9)		20	
	4.0	0.03	0.31 (10)		21	
					22	
Transect I 4.5 m	0.45	0.05	0.05 (1)		23	
	0.90	0.10	0.10 (2)		24	
	1.35	0.12	0.12 (3)		25	
	1.80	0.20	~~0.20~~ 0.19 (4)		26	
	2.25	0.19	0.19 (5)		.	
	2.70	0.19	0.19 (6)		.	
	3.15	0.19	0.19 (7)		.	
	3.60	0.20	0.20 (8)		n	
	4.05	0.20	0.20 (9)			
	4.50	0.19	0.20 (10)			

If there is an odd number of entries find middle rank [(n+1)/2]. The corresponding sorted value depth to the middle rank is the median depth.
If there is an even number of entries, the median depth corresponds to the arithmetic average of the two depth values surrounding the middle rank.

I, the undersigned, hereby affirm to the best of my knowledge, that all information reported on this UAA datasheet is true and accurate.

Signed: Ryan M. Lunt **Date:** 05-14-07

Organization: Seagull Environmental Technologies Position: Environmental Scientist

Data Sheet C – Cross-Sectional Depth Measurements (for estimation of median depth)

Distance from Stream edge	Depth	Rank		Assigned Rank	Sorted depth
Transect J 0.40	0.01	0.01	(1)	1	
0.85	0.18	0.10	(2)	2	
1.20	0.17	0.10	(3)	3	
1.60	0.19	0.10	(4)	4	
2.00	0.20	0.11	(5)	5	
2.40	0.13	0.13	(6)	6	
2.80	0.11	0.17	(7)	7	
3.20	0.10	0.18	(8)	8	
3.60	0.10	0.19	(9)	9	
4.00	0.10	0.20	(10)	10	
				11	
Transect K 0.30	0.07	0.02	(1)	12	
0.70	0.10	0.03	(2)	13	
0.96	0.15	0.07	(3)	14	
1.20	0.10	0.09	(4)	15	
1.50	0.11	0.09	(5)	16	
1.80	0.10	0.10	(6)	17	
2.10	0.09	0.10	(7)	18	
2.40	0.09	0.10	(8)	19	
2.70	0.03	0.11	(9)	20	
3.00	0.02	0.15	(10)	21	
				22	
				23	
				24	
				25	
				26	
				.	
				.	
				.	
				n	

4m

3m

If there is an odd number of entries find middle rank [(n+1)/2]. The corresponding sorted value depth to the middle rank is the median depth.
If there is an even number of entries, the median depth corresponds to the arithmetic average of the two depth values surrounding the middle rank.

I, the undersigned, hereby affirm to the best of my knowledge, that all information reported on this UAA datasheet is true and accurate.

Signed: Ryan M. Hunt **Date:** 05-14-07

Organization: Seagull Environmental Technologies Position: Environmental Scientist

WBID# 455
Site# 2

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

05-14-07 RL

Date & Time: ~~05-15-07~~ 16:00	Site Location Description (e.g., road crossing): 10 meters wide, Bridge crossing, off of Gravel Rd 50 m from Bridge
Personnel (Data Collectors): Lunt & Wells RL	
Current Weather Conditions: 75-80 Sunny / ~~Heavy Rain~~	Facility Name: New Hampton WWTF
Weather Conditions for Past 10 days: Sunny / Heavy Rain	Permit Number: MO 0114085
Drought Conditions?: No drought ☒; Phase I ☐; Phase II ☐; Phase III ☐; Phase IV ☐; Unknown ☐	

Site Locations:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION IN METERS)

Site GPS Coordinates: UTM X: ~~440.15589~~ W 94.22848 Y: ~~4454256~~ N 40.15589

HORIZONTAL COLLECTION METHOD (Indicate the method used to determine the locational data.)

Global Positioning System (GPS)		Interpolation	
Static Mode		Topographic Map or DRG	
Dynamic Mode (Kinematic)		Aerial Photograph or DOQQ	
Precise Positioning Service		Satellite Imagery	
Signal Averaging		Interpolation Other	
Real Time Differential Processing			

HORIZONTAL ACCURACY ESTIMATE

GPS Data Quality		Interpolation Data Quality
FOM	± _____ Meters	Source Map Scale: 1:24,000 1:100,000 Other _____
EPE	± 20 Feet or ± _____ Meters	± _____ Feet or ± _____ Meters
PDOP		

Photos: No Photos taken

Upstream Photos		Downstream Photos		Other Photos	
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
		~~MES-1-071~~ ~~RL6-2~~			

Uses Observed*: (Uses actually observed at time of survey.)

☐ Swimming	☐ Skin diving	☐ SCUBA diving	☐ Tubing	☐ Water skiing
☐ Wind surfing	☐ Kayaking	☐ Boating	☐ Wading	☐ Rafting
☐ Hunting	☐ Trapping	☐ Fishing	☒ None of the above	☐ Other:

Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use *Data Sheet D- Recreational Use Interview* when conducting interviews.)

Surrounding Conditions*: (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

☐ City/county parks	☐ Playgrounds	☐ MDC conservation lands	☐ Urban areas	☐ Campgrounds
☐ Boating accesses	☐ State parks	☐ National forests	☐ Nature trails	☐ Stairs/walkway
☐ No trespass sign	☐ Fence	☒ Steep slopes	☐ None of the above	☒ Other: Farm land

Comments:

Indications of Human Use*: (attach photos)

☒ Roads	☐ Rope swings	☐ Foot paths/prints	☐ Dock/platform	☐ Livestock Watering	☐ RV / ATV Tracks
☐ Camping Sites		☐ Fire pit/ring	☐ NPDES Discharge	☐ Fishing Tackle	☐ Other:

Comments: Rd 612 off of Hwy 22

*** Page Two – Data Sheet B for WBID # 455 :**

Stream Morphology:

Upstream View's Physical Dimensions: Is there any water present at this view? ☒ Yes ☐ No

If so, is there an obvious current? ☒ Yes ☐ No

Select one of the following channel features: Transect D

Channel Feature	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE					
90% RUN	190 M	7.1 M	15M	0.18	0.34
10% POOL					

Downstream View's Physical Dimensions: Is there any water present at this view? ☒ Yes ☐ No

If so, is there an obvious current? ☒ Yes ☐ No

Select one of the following channel features: Transect A

Channel Feature	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE					
100% RUN	15 M	10 M	19 M	0.11	0.14M
POOL					

Substrate*: (These values should add up to 100%.)

% Cobble	% Gravel	90 % Sand	5 % Silt	5 % Mud/Clay	% Bedrock

Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site)

little aquatic vegetation, very woody. Detritus floating in the water column Log Jam below 6012 Rd Bridge crossing.

Water Characteristics*: (Mark all that apply.)

Odor:	☐ Sewage	☐ Musky	☐ Chemical	☒ None	☐ Other:
Color:	☐ Clear	☒ Green	☐ Gray	☐ Milky	☐ Other:
Bottom Deposit:	☐ Sludge	☐ Solids	☒ Fine sediments	☐ None	☐ Other:
Surface Deposit:	☐ Oil	☐ Scum	☐ Foam	☒ None	☐ Other:

Comments: Please attach any additional comments () to this form.

*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that effect another use.

Please verify that you have completed all sections, checked all applicable boxes and that everything is complete.

Surveyor's Signature: Ryan M. Lunt Date of Survey: 05-17-2007

Organization: Seagull Environtechnologies Position: Environmental Scientist

Each Transect 19.1m

Data Sheet C – Cross-Sectional Depth Measurements (for estimation of median depth)

	Distance from Stream edge	Depth	Rank		Assigned Rank	Sorted depth
Trans A	0.52	0.10	0.08	(1)	1	
	1.52	0.10	0.08	(2)	2	
10 meters	2.52	0.11	0.10	(3)	3	
	3.52	0.10	0.10	(4)	4	
	4.52	0.12	0.10	(5)	5	
	5.52	0.11	0.11	(6)	6	
	6.52	0.08	0.11	(7)	7	
	7.52	0.08	0.12	(8)	8	
	8.52	0.14	0.14	(9)	9	
	9.52	0.14	0.14	(10)	10	
Transect B	0.60	0.15	0.01	(1)	11	
	1.20	0.20	0.01	(2)	12	
	1.80	0.30	0.01	(3)	13	
6 meters	2.40	0.25	0.04	(4)	14	
	3.00	0.26	0.15	(5)	15	
	3.60	0.28	0.20	(6)	16	
	4.20	0.04	0.25	(7)	17	
	4.80	0.01	0.26	(8)	18	
	5.40	0.01	0.28	(9)	19	
	6.00	0.01	0.30	(10)	20	
Transect C	0.71	0.09	0.01	(1)	21	
	1.42	0.12	0.09	(2)	22	
	2.13	0.13	0.11	(3)	23	
7.1 meter	2.84	0.14	0.12	(4)	24	
	3.55	0.15	0.13	(5)	25	
	4.26	0.18	0.14	(6)	26	
	4.97	0.19	0.15	(7)	.	
	5.68	0.15	0.18	(8)	.	
	6.39	0.11	0.19	(9)	.	
	7.10	0.01	0.19	(10)	n	

If there is an odd number of entries find middle rank [(n+1)/2]. The corresponding sorted value depth to the middle rank is the median depth.
If there is an even number of entries, the median depth corresponds to the arithmetic average of the two depth values surrounding the middle rank.

I, the undersigned, hereby affirm to the best of my knowledge, that all information reported on this UAA datasheet is true and accurate.

Signed: Ryan M. Trent **Date:** 05-14-07

Organization: Seagull Environmental Technologies Position: ~~Staff~~ Environmental Scientist

Data Sheet C – Cross-Sectional Depth Measurements (for estimation of median depth)

	Distance from Stream edge	Depth	Rank		Assigned Rank	Sorted depth
Transect D	0.61	0.10	0.10	(1)	1	
	1.22	0.12	0.12	(2)	2	
	1.83	0.13	0.13	(3)	3	
6.1 meter	2.44	0.14	0.13	(4)	4	
	3.05	0.12	0.14	(5)	5	
	3.71	0.15	0.15	(6)	6	
	4.32	0.18	0.18	(7)	7	
	4.97	0.18	0.18	(8)	8	
	5.54	0.20	0.20	(9)	9	
	6.15	0.24	0.24	(10)	10	
Transect E	0.77	0.01	0.01	(1)	11	
	1.54	0.01	0.01	(2)	12	
	2.31	0.09	0.09	(3)	13	
7.7 meters	3.08	0.12	0.12	(4)	14	
	3.85	0.20	0.13	(5)	15	
	4.62	0.15	0.15	(6)	16	
	5.39	0.13	0.15	(7)	17	
	6.16	0.18	0.18	(8)	18	
	6.93	0.20	0.20	(9)	19	
	7.70	0.15	0.20	(10)	20	
Transect F	0.60	0.09	0.04	(1)	21	
	1.20	0.30	0.09	(2)	22	
	1.80	0.31	0.10	(3)	23	
	2.40	0.23	0.11	(4)	24	
6 meters	3.00	0.17	0.11	(5)	25	
	3.60	0.11	0.12	(6)	26	
	4.20	0.11	0.17	(7)	.	
	4.80	0.12	0.23	(8)	.	
	5.40	0.10	0.30	(9)	.	
	6.00	0.04	0.31	(10)	n	

If there is an odd number of entries find middle rank [(n+1)/2]. The corresponding sorted value depth to the middle rank is the median depth.
If there is an even number of entries, the median depth corresponds to the arithmetic average of the two depth values surrounding the middle rank.

I, the undersigned, hereby affirm to the best of my knowledge, that all information reported on this UAA datasheet is true and accurate.

Signed:_____ **Date:**_____

Organization:_____ Position:_____

Data Sheet C – Cross-Sectional Depth Measurements (for estimation of median depth)

	Distance from Stream edge	Depth	Rank		Assigned Rank	Sorted depth
Trans G	0.63	0.21	0.21	(1)	1	
	1.26	0.31	0.29	(2)	2	
	1.89	0.35	0.30	(3)	3	
6.3 meter	2.52	0.40	0.31	(4)	4	
	3.15	0.34	0.31	(5)	5	
	3.78	0.30	0.32	(6)	6	
	4.41	0.35	0.34	(7)	7	
	5.04	0.31	0.35	(8)	8	
	5.67	0.32	0.35	(9)	9	
	6.30	0.29	0.40	(10)	10	
Trans H	0.52	0.03	0.03	(1)	11	
	1.04	0.19	0.12	(2)	12	
	1.56	0.30	0.19	(3)	13	
	2.08	0.44	0.26	(4)	14	
	2.60	0.34	0.25	(5)	15	
5.2 meters	3.12	0.30	0.25	(6)	16	
	3.64	0.25	0.30	(7)	17	
	4.16	0.25	0.30	(8)	18	
	4.68	0.20	0.34	(9)	19	
	5.20	0.17	0.44	(10)	20	
Transect I.	0.60	0.11	0.03	(1)	21	
	1.20	0.13	0.11	(2)	22	
	1.80	0.15	0.13	(3)	23	
	2.40	0.19	0.15	(4)	24	
	3.00	0.25	0.19	(5)	25	
6 meters	3.60	0.29	0.25	(6)	26	
	4.20	0.34	0.29	(7)	.	
	4.80	0.43	0.34	(8)	.	
	5.40	0.42	0.42	(9)	.	
	6.00	0.03	0.43	(10)	n	

If there is an odd number of entries find middle rank [(n+1)/2]. The corresponding sorted value depth to the middle rank is the median depth.
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I, the undersigned, hereby affirm to the best of my knowledge, that all information reported on this UAA datasheet is true and accurate.

Signed:_____ **Date:**_____

Organization:_____ Position: _____

Data Sheet C – Cross-Sectional Depth Measurements (for estimation of median depth)

	Distance from Stream edge	Depth	Rank		Assigned Rank	Sorted depth
Transect 1	0.30	0.01	0.01	(1)	1	
	1.01	0.39	0.09	(2)	2	
	1.72	0.22	0.10	(3)	3	
	2.43	0.12	0.11	(4)	4	
	2.14	0.10	0.12	(5)	5	
	3.85	0.11	0.15	(6)	6	
7.1 meters	4.66	0.15	0.22	(7)	7	
	5.37	0.09	0.24	(8)	8	
	6.08	0.24	0.30	(9)	9	
	6.79	0.30	0.39	(10)	10	
	0.505	0.02	0.02	(1)	11	
	0.64	0.24	0.05	(2)	12	
	1.59	0.34	0.11	(3)	13	
Transect 5	1.94	0.30	0.15	(4)	14	
	2.39	0.25	0.15	(5)	15	
	2.84	0.24	0.24	(6)	16	
	3.29	0.15	0.34	(7)	17	
	3.74	0.15	0.39	(8)	18	
4.5 meters	4.19	0.11	0.30	(9)	19	
	4.64	0.08	0.34	(10)	20	
					21	
					22	
					23	
					24	
					25	
					26	
					.	
					.	
					.	
					n	

If there is an odd number of entries find middle rank [(n+1)/2]. The corresponding sorted value depth to the middle rank is the median depth.
If there is an even number of entries, the median depth corresponds to the arithmetic average of the two depth values surrounding the middle rank.

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Signed: Ryan M. Hunt **Date:** 05-14-07

Organization: Stantec Environmental Technologies Position: Environmental Scientist

WBID# 455
Site# 3

Field Data Sheets for Recreational Use Stream Surveys
Data Sheet B - Site Characterization
(must be completed for each site)

Date & Time: 05-17-07 8:30 AM	Site Location Description (e.g., road crossing): Transect A 55M upstream from Hwy 22 Bridge
Personnel (Data Collectors): Lunt & Wells	
Current Weather Conditions: Sunny 60-65°F	Facility Name: New Hampton WWTF
Weather Conditions for Past 10 days: Sunny/light Rain	Permit Number: MO114685
Drought Conditions?: No drought ☒; Phase I ☐; Phase II ☐; Phase III ☐; Phase IV ☐; Unknown ☐	

Site Locations:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)

Site GPS Coordinates: UTM X: ~~N40.15161 W094.20432~~ Y: ~~W094.20432~~ N40.15161

HORIZONTAL COLLECTION METHOD (Indicate the method used to determine the locational data.)

Global Positioning System (GPS)		Interpolation	
Static Mode		Topographic Map or DRG	
Dynamic Mode (Kinematic)		Aerial Photograph or DOQQ	
Precise Positioning Service		Satellite Imagery	
Signal Averaging		Interpolation Other	
Real Time Differential Processing			

HORIZONTAL ACCURACY ESTIMATE

GPS Data Quality		Interpolation Data Quality
FOM	± _____ Meters	Source Map Scale: 1:24,000 1:100,000 Other _____
EPE	± 20 Feet or ± _____ Meters	± _____ Feet or ± _____ Meters
PDOP		

Photos:

Upstream Photos		Downstream Photos		Other Photos	
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
455-6	Transect J-K	455-5	Transect B-A	455-1,2,3,4	360° of Transect A Up, Rt, Down, Lt

Uses Observed*: (Uses actually observed at time of survey.)

☐ Swimming	☐ Skin diving	☐ SCUBA diving	☐ Tubing	☐ Water skiing
☐ Wind surfing	☐ Kayaking	☐ Boating	☐ Wading	☐ Rafting
☐ Hunting	☐ Trapping	☐ Fishing	☒ None of the above	☐ Other:

Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use *Data Sheet D- Recreational Use Interview* when conducting interviews.)

Surrounding Conditions*: (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

☐ City/county parks	☐ Playgrounds	☐ MDC conservation lands	☐ Urban areas	☐ Campgrounds
☐ Boating accesses	☐ State parks	☐ National forests	☐ Nature trails	☐ Stairs/walkway
☐ No trespass sign	☐ Fence	☐ Steep slopes	☒ None of the above	☐ Other:

Comments:

Indications of Human Use*: (attach photos)

☒ Roads	☐ Rope swings	☐ Foot paths/prints	☐ Dock/platform	☐ Livestock Watering	☐ RV / ATV Tracks
☐ Camping Sites		☐ Fire pit/ring	☐ NPDES Discharge	☐ Fishing Tackle	☐ Other:

Comments: Hwy 22 North of McFall, Mo

*** Page Two – Data Sheet B for WBID # 495 :**

Stream Morphology:

Upstream View's Physical Dimensions: Is there any water present at this view? ☒ Yes ☐ No

If so, is there an obvious current? ☒ Yes ☒ No – for Pool W.W

Select one of the following channel features: Transect J-K

Channel Feature	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE					
50% RUN					
50% POOL	225m	7m	9m	0.30	0.42

Downstream View's Physical Dimensions: Is there any water present at this view? ☒ Yes ☐ No

If so, is there an obvious current? ☒ Yes ☐ No

Select one of the following channel features: Transect B-A

Channel Feature	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE					
100% RUN	75m	6m	17m	0.17	0.31
POOL					

Substrate*: (These values should add up to 100%.)

5 % Cobble	% Gravel	30 % Sand	% Silt 60 RL % Mud/Clay	5 % Bedrock

Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site)

Limited aquatic vegetation, Most vegetation along banks & slopes, Floating Detritus in water column & algal growth on substrate

Water Characteristics*: (Mark all that apply.)

Odor:	☐ Sewage	☐ Musky	☐ Chemical	☒ None	☐ Other:
Color:	☐ Clear	☒ Green	☒ Gray	☐ Milky	☐ Other:
Bottom Deposit:	☒ Sludge	☐ Solids	☒ Fine sediments	☐ None	☐ Other:
Surface Deposit:	☐ Oil	☐ Scum	☐ Foam	☒ None	☐ Other:

Comments: Please attach any additional comments () to this form.

*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that effect another use.

Please verify that you have completed all sections, checked all applicable boxes and that everything is complete.

Surveyor's Signature: Ryan McLunt Date of Survey: 05-17-07

Organization: Seagull Environmental Technologies Position: Environmental Scientist

Data Sheet C – Cross-Sectional Depth Measurements (for estimation of median depth)

17 meter Reach

	Distance from Stream edge	Depth	Rank		Assigned Rank	Sorted depth
Transect A 7.0	0.7	0.10			1	
	1.4	0.10			2	
	2.1	0.13			3	
	2.8	0.14			4	
	3.5	0.14			5	
	4.2	0.19			6	
	4.9	0.20			7	
	5.6	0.31			8	
	6.3	0.33			9	
	7.0	0.13			10	
Transect B 6.0					11	
	0.6	0.17	0.10	(1)	12	
	1.2	0.31	0.11	(2)	13	
	1.8	0.17	0.11	(3)	14	
	2.4	0.11	0.13	(4)	15	
	3.0	0.17	0.16	(5)	16	
	3.6	0.10	0.17	(6)	17	
	4.2	0.11	0.17	(7)	18	
	4.8	0.13	0.17	(8)	19	
Transect C 7.0	5.4	0.16	0.17	(9)	20	
	6.0	0.17	0.31	(10)	21	
					22	
	0.7	0.10			23	
	1.4	0.11			24	
	2.1	0.17			25	
	2.8	0.20			26	
	3.5	0.21			.	
	4.2	0.21			.	
	4.9	0.23			.	
	5.6	0.25			n	
	6.3	0.19				
	7.0	0.12				

If there is an odd number of entries find middle rank [(n+1)/2]. The corresponding sorted value depth to the middle rank is the median depth.
If there is an even number of entries, the median depth corresponds to the arithmetic average of the two depth values surrounding the middle rank.

I, the undersigned, hereby affirm to the best of my knowledge, that all information reported on this UAA datasheet is true and accurate.

Signed: Ryan M. Lunt **Date:** 05-17-07

Organization: Seagull Environmental Technologies Position: Environmental Scientist

Data Sheet C – Cross-Sectional Depth Measurements (for estimation of median depth)

	Distance from Stream edge	Depth	Rank		Assigned Rank	Sorted depth
Transect D 6.0	0.6	0.04			1	
	1.2	0.06			2	
	1.8	0.13			3	
	2.4	0.14			4	
	3.0	0.22			5	
	3.6	0.24			6	
	4.2	0.27			7	
	4.8	0.33			8	
	5.4	0.33			9	
	6.0	0.14			10	
Transect E 7.0					11	
	0.7	0.10			12	
	1.4	0.13			13	
	2.1	0.14			14	
	2.8	0.16			15	
	3.5	0.19			16	
	4.2	0.19			17	
	4.9	0.20			18	
	5.6	0.21			19	
	6.3	0.22			20	
	7.0	0.13			21	
Transect F 8.0					22	
	0.8	0.04			23	
	1.6	0.11			24	
	2.4	0.13			25	
	3.2	0.15			26	
	4.0	0.18			.	
	4.8	0.16			.	
	5.6	0.19			.	
	6.4	0.21			n	
	7.2	0.22				
	8.0	0.15				

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Signed: Ryan M. Lunt **Date:** 05-17-07

Organization: Seagull Environmental Technologies Position: Environmental Scientist

Data Sheet C – Cross-Sectional Depth Measurements (for estimation of median depth)

	Distance from Stream edge	Depth	Rank		Assigned Rank	Sorted depth
Transect G 6.0	0.6	0.10			1	
	1.2	0.10			2	
	1.8	0.14			3	
	2.4	0.11			4	
	3.0	0.15			5	
	3.6	0.09			6	
	4.2	0.29			7	
	4.8	0.33			8	
	5.4	0.39			9	
	6.0	0.35			10	
Transect H 7.0					11	
	0.7	0.10			12	
	1.4	0.10			13	
	2.1	0.11			14	
	2.8	0.15			15	
	3.5	0.20			16	
	4.2	0.33			17	
	4.9	0.15			18	
	5.6	0.14			19	
	6.3	0.11			20	
Transect I 6.0	7.6	0.10			21	
					22	
	0.6	0.22			23	
	1.2	0.35			24	
	1.8	0.36			25	
	2.4	0.31			26	
	3.6	0.29			.	
	3.6	0.25			.	
	4.2	0.18			.	
	4.8	0.10			n	
	5.4	0.10				
	6.0	0.13				

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Signed: Ryan M. Lent **Date:** 05-17-07

Organization: Seagull Environmental Technologies Position: Environmental Scientist

Data Sheet C – Cross-Sectional Depth Measurements (for estimation of median depth)

	Distance from Stream edge	Depth	Rank		Assigned Rank	Sorted depth
Transect J 2.0	0.7	0.14			1	
	1.4	0.15			2	
	2.1	0.19			3	
	2.8	0.29			4	
	3.5	0.30			5	
	4.2	0.31			6	
	4.8	0.44			7	
	5.6	0.31			8	
	6.3	0.21			9	
	7.0	0.19			10	
					11	
K Transect 6.0	0.6	0.30	0.10	(1)	12	
	1.2	0.41	0.14	(2)	13	
	1.8	0.42	0.28	(3)	14	
	2.4	0.39	0.29	(4)	15	
	3.0	0.33	0.29	(5)	16	
	3.6	0.29	0.30	(6)	17	
	4.2	0.28	0.33	(7)	18	
	4.8	0.29	0.39	(8)	19	
	5.4	0.19	0.41	(9)	20	
	6.0	0.10	0.42	(10)	21	
					22	
					23	
					24	
					25	
					26	
					.	
					.	
					.	
					n	

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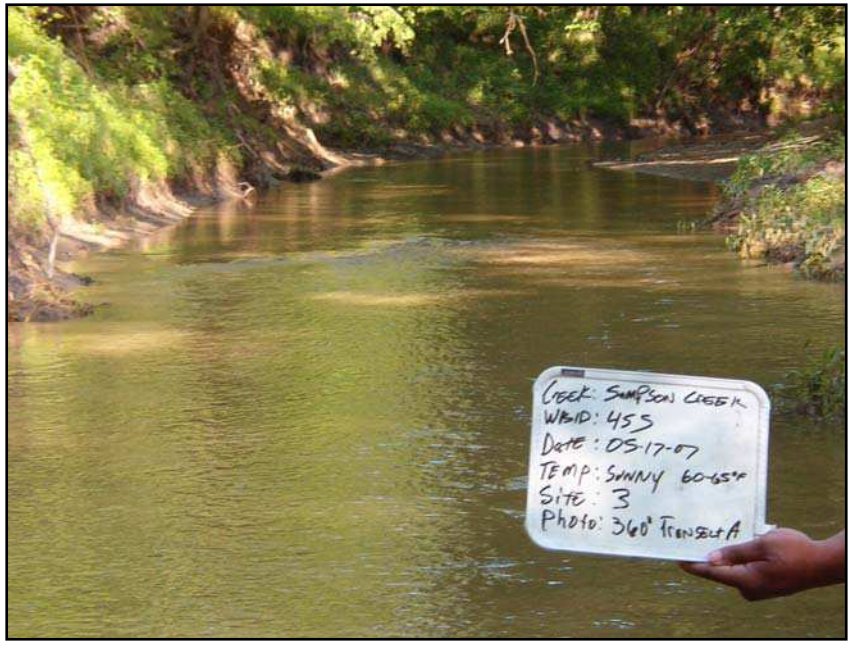
Signed: Ryan M. Hunt **Date:** 05-17-07

Organization: Seagull Environmental Technologies Position: Environmental Scientist

DISSOLVED OXYGEN DATA ENTRY SHEET

Stream ID	WBID	Date	Time	Cross - Section #	Transect #	DO Reading (mg/L)
Sampson Creek	455	05-13-07	12:37	1	1	8.40
			12:41		2	8.51
			12:50		3	8.23
			13:00		4	8.10
			13:15		5	8.48
			13:31		6	~~8.86~~ 8.86
			13:47		7	8.01
			13:59		8	7.76
			14:10		9	8.07
			14:22		10	8.56
			14:41		11	8.01
Sampson Creek	455	05-14-07	16:10	2	1	7.43
			16:25		2	7.28
			16:40		3	7.24
			16:55		4	7.08
			17:10		5	6.83
			17:20		6	6.88
			17:30		7	7.12
			17:40		8	7.17
			17:49		9	7.00
			17:59		10	7.30
			18:07		11	7.15
Sampson Creek	455	05-17-07	08:30	3	1	8.01
			08:35		2	8.86
			08:40		3	8.86
			08:45		4	8.74
			08:50		5	8.82
			08:55		6	8.71
			09:00		7	8.84
			09:05		8	8.75
			09:10		9	8.78
			09:15		10	8.68
			09:20		11	8.78



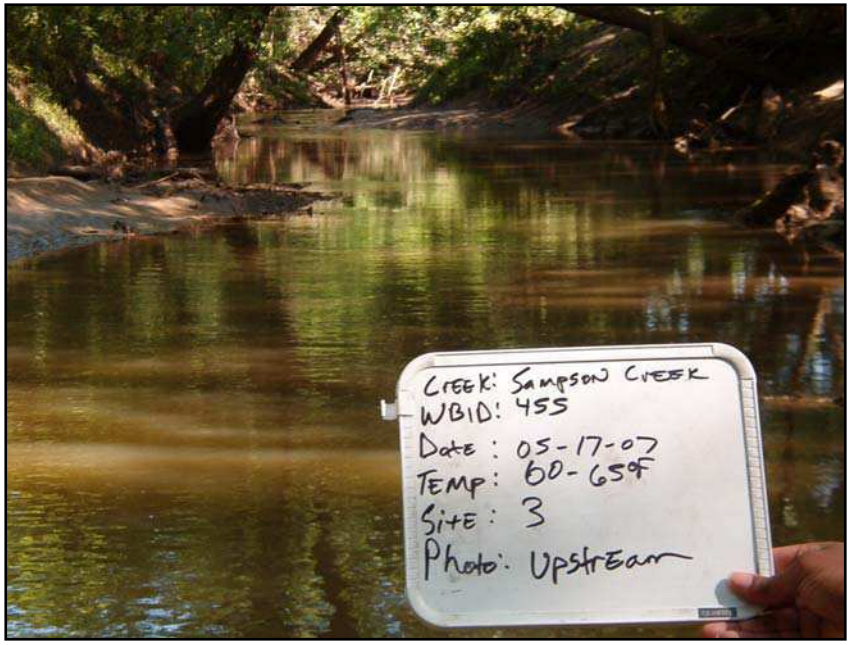
Transect A (Site 3) of Sampson Creek.

Transect A (Site 3) of Sampson Creek.

Transect A (Site 3) of Sampson Creek.

Transect A (Site 3) of Sampson Creek.

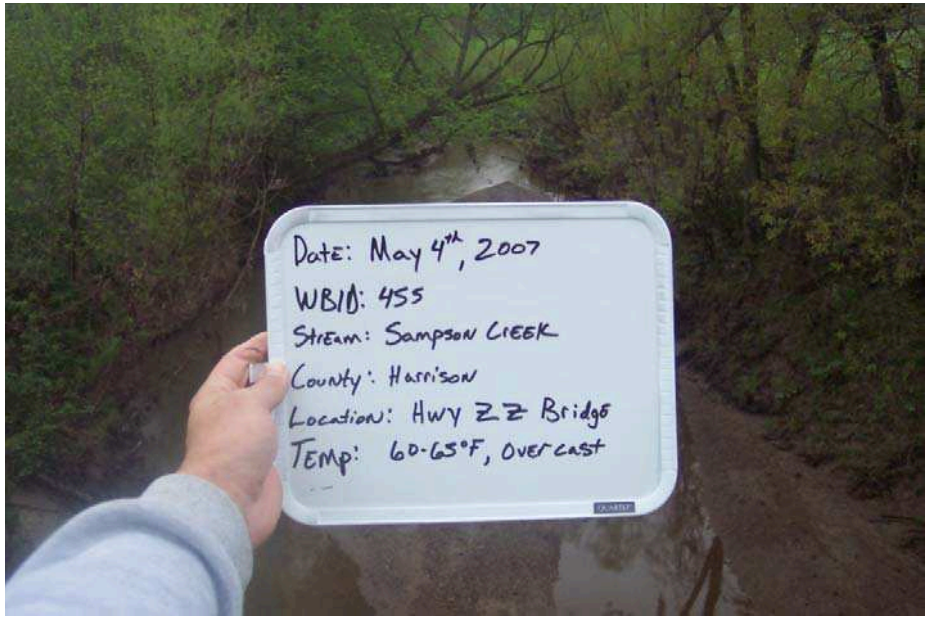
Downstream (Site 3) of Sampson Creek.



Upstream (Site 3) of Sampson Creek.

Hwy ZZ Bridge of Sampson Creek.

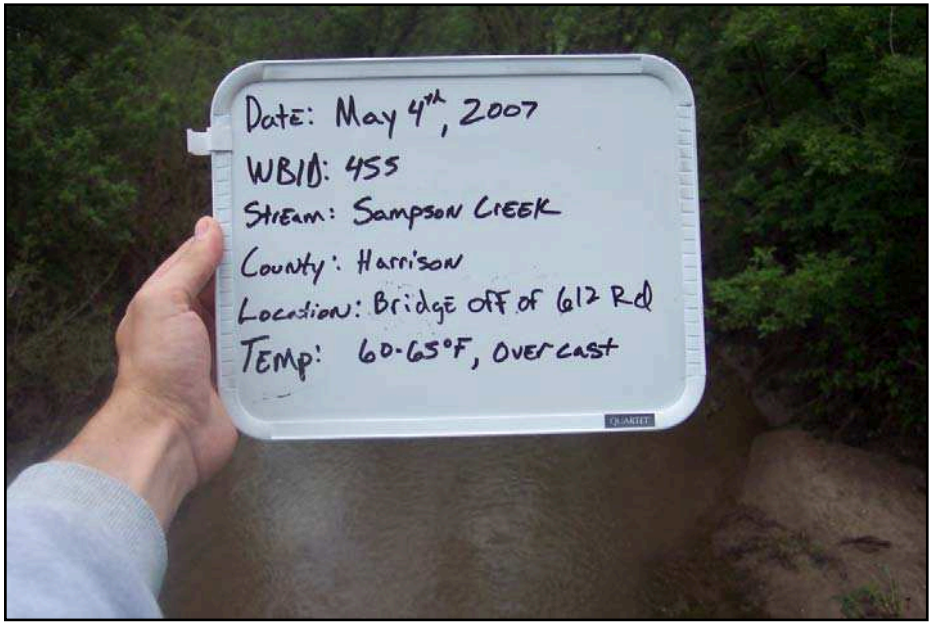
Private property posting near Sampson Creek.



Hwy ZZ Bridge of Sampson Creek.

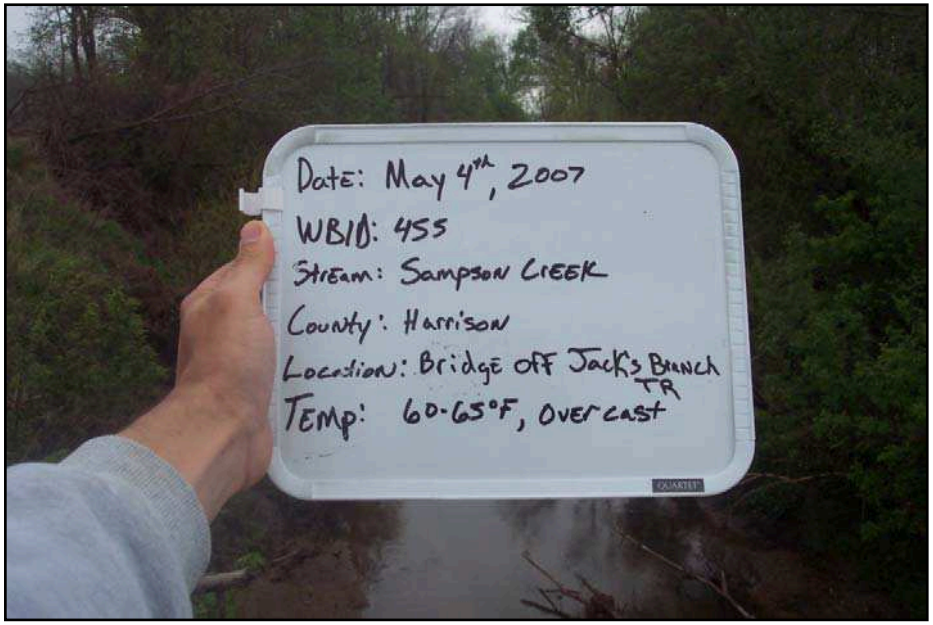
Hwy ZZ Bridge of Sampson Creek.

Private property posting near Sampson Creek.



612 Road Bridge of Sampson Creek.

612 Road Bridge of Sampson Creek.



Jack's Branch Bridge of Sampson Creek.

Jack's Branch Bridge of Sampson Creek.

Field Data Sheet for Recreational Use Stream Survey

Data Sheet D—Recreational Use Interview

Stream Name Sampson Creek ***(WBID #*** 455)

I. Introduction

Date & Time (include AM or PM): 04-05-07 11:25 A.M.

Interviewed: ☐ In person ☒ By phone ☐ By mail
(NOTE: If you are an Interviewee filling out this form to mail back to DNR, proceed to Question #1.)

Interviewee selected because (e.g., house next to stream; standing by stream, etc.) Interviewee owns the land surrounding Sampson Creek.

Interviewer introduction to Interviewee: "My name is _____, I work for _(*name of your employer*)_____, and I am collecting information on how people use _(*name of the stream*)_____."

ASK:

1.) Are you willing to respond to a survey about this stream? (It will just take a few minutes.)
☒ Yes ☐ No If yes, list contact information for the interviewee below:
Legal name: Betty Grace
Current mailing address: 1102 E. Perry Albany, Mo 64402
Daytime phone number: (660) 726-3262
E-mail address (optional):

2.a.) Do you live in this area? ☐ Yes ☒ No
If yes, how many years?

2.b.) If you don't live nearby, are you still familiar with this stream? ☒ Yes ☐ No
If yes, how many years?
If no, thank the individual for taking the time to talk to you and conclude the interview.

3.) Are you familiar with this particular stretch of the stream? (show them the map, pointing out local landmarks such as roads, bridges, property lines) ☒ Yes ☐ No
If yes, proceed to "II. Personal Use?".
If no, proceed to Section V.

II. Personal Use?

1.) Have you or your family personally used the stream for recreation since November 28, 1975?
☐ Yes ☒ No
If yes, proceed to #3.
If no, proceed to #2.

2.a.) List reasons stream not used.
Refer to Swing Fish in the ponds surrounding Sampson Creek. Sampson Creek is also to small & shallow for any recreational use.

2.b.) Proceed to "III. Witnessed Use?".

3.) How do you use the stream?

2.b.) Where, exactly? Describe specific location *and mark on the map* (Seemap requirements in the protocol)._____

Secondary Contact Recreation				
Fishing ☐	Wading ☐	Boating ☐	Trapping ☐	Other: ☐ List:

If Interviewee witnessed SCR use since Nov. 28, 1975, ask the following questions:

2.c.) When (e.g., year(s)?; season?; only after a rain?) and how often (times/year)?_____

2.d.) Where, exactly? Describe specific location *and mark on the map* (Seemap requirements in the protocol)._____

IV. Anecdotal Use?

1.) Have you heard about anyone using this stream since Nov. 28, 1975 for recreation – not seen or done yourself, but just heard about it? ☐ Yes ☒ No — Stream to small & shallow

If yes, proceed to #2.

If no, thank the individual for taking the time to talk to you and conclude the interview.

2.) What kind of uses have you heard about?

Whole Body Contact Recreation			
Swimming ☐	Tubing ☐	Snorkeling/Skin Diving ☐	Water Skiing ☐

If Interviewee heard of WBCR use since Nov. 28, 1975, ask the following questions:

2.a.) When did these uses take place (e.g., year(s)?; season?; only after a rain?) and how often (times/year)?_____

2.b.) Where, exactly? Describe specific location *and mark on the map* (See map requirements in the protocol)._____